microBYTES
Published bi-monthly by Bits & Bytes Ltd.
THE EXTRA BIT FOR MICRO USERS
Issue 4
July

Atari – all set to go?

Going some way towards showing that microcomputer buyers have brand name loyalty, unlike their PC counterparts, is the continuing story of the local Atari situation. In a state of chaos for some years, the Atari supply question seems to have been settled, but until the publicity machinery is up and running some of the retailers are continuing to sell the hardware by word of mouth.

"Most people buy a home computer because they know someone who has one," says Kevin Butler of Henderson's West City Computers. "This loyalty to name brands isn't evident in PCs."

West City Computers now also stocks Commodores, selling both in the home area. "We started selling Ataris before anyone else," says Butler, "but at the moment it's held up at the Atari end by tradition."

Five years ago the New Zealand distributorship for Atari was with David Reid Electronics who, after apparently deciding it was mostly a games machine, sold it to Montek Equipment about the same time the brand was beginning to establish itself as something with a bit to offer. But it suffered badly from support, described as "haphazard" by one dealer, with even worse backup, and Atari lost a reasonably strong foothold in the market, eventually fading from the scene altogether.

To be fair, it wasn't all Montek's fault. The parent Atari company in California has admitted that New Zealand was regarded as something of a computing backwater, and it concentrated instead on the lucrative European market. As a result, the software base over there is strong, much stronger than Amiga's, according to Ian Goodwin of Software Supplies, Christchurch.

Supply benefit

Software Supplies was appointed NZ distributor for Atari computers in April and, according to the dealers, is already benefitting the local supply situation. This country is no longer regarded as a backwater, and Goodwin says sourcing from Australia is not now a problem.

"Previously we had stock supply problems, and we couldn't promote the product because we couldn't get it. There was a shortage of 200,000 machines world-wide."

But mutterings have been heard among some dealers, who say they have some negative feelings about the present situation. One cause is an apparent lack of dialogue in the months leading up to Software Supplies' appointment, with Atari Australia not speaking to any retailers.

And another is an overlap in representation. Far East Trading of Auckland is now the distributor for Atari games machines – and the 8-bit computers, including the 130XE. What has raised a few eyebrows is the fact that Software Supplies also represents the 8-bit Ataris, as well as the 16-bit STs and PCs.

No problems, according to Nick Watson of Far East Trading. The company is concentrating on the games side, which it considers to be the growth area in 8-bit machines, and acknowledges that serious computer users will be looking at the STs. Far East Trading is agent for Activision as well as Atari games software and so has access to a large range of games material. It is also looking at the educational element.

Both distributors are in a position to set their own retail prices, which has drawn criticism from John Churchill of Input Output Devices, a New Plymouth retailer. During the hiatus of almost a year he sourced his Atari stock direct from Australia, under instructions to keep his prices close to those across the Tasman. He feels that the current slightly higher recommended retail price is no longer in line with Australia's and should be lower.

Not so, says Software Supplies' Alex Davidson. "We feel the retail price is pretty competitive. It's a fair price, reflecting all the costs involved." He says it's in line with the Amiga here, whereas in Australia the Amiga undercuts Atari, and he also points out that re-establishing the Atari name in New Zealand will take a considerable amount of money.

And everybody seems agreed that Atari should become known again. "It would be a sad thing if it doesn't get off the ground this time," is the opinion of Kevin Butler.

"The Atari has tremendous computing power which we want to be part of," states John Churchill. "New Zealand does need a good distributor. The product is too good to be handled willy-nilly."

"They have a long uphill job," says Commodore's Mike Cooch. "They've left the market for so long, and haven't done their job. You've got to support your product – you must support the end-user."

With the range of software now available for the Atari ST – and the promised Atari versions of well-known business packages from such publishers as Microsoft – the computer, if treated properly, could well see a resurgence in this country. The number of enthusiasts still using their Atari machines suggests that brand loyalty is indeed a factor in this area.

Why the micros are selling

In a time of national gloom and doom, with large computer supply firms going to the wall, there's a certain cheerfulness around the distributors of some of the micros. Even allowing for an understandable reluctance to admit defeat, the general trend does seem to be upwards in this part of the industry.

Commodore, with a major promotion of its C.64 and Amiga range during the May school holidays, is finding the only problem is sufficient supply to keep up with demand. Mike Cooch gives figures of 500 family packs and twice as many larger packs of C.64s being sold during the promotion, which inlcuded heavy TV coverage.

The Amiga, which has sold in the region of 3,500 to 4,000 in New Zealand, is also going well, some 900 going out the door in the past two months. The main reason, according to Cooch, is the fact that it's well accepted internationally, plus the large amount of software available, including such packages as WordPerfect for the Amiga which all helps its credibility.

But Commodore isn't talking about anything dramatic for the future at this stage. Variations on the Amiga theme seem likely, perhaps with more RAM, and the C.64 continues to defy the prophets and keeps soldiering on – "probably into the 1990s". It's all software, Cooch points out, with fourth-generation 64 software outperforming much PC stuff, particularly in the games area, as well as being cheap.

Across town at Barson Computer, Greg Magness is more cagey about the BBC range, being unwilling to divulge actual sales figures. Instead, he says the Archimedes is selling "better than expected", with the BBC Compact's sales being twice those of last year.

The BBC is aimed more at the education than the home market, he points out. "The biggest demand is selling customised solutions to a market that listens. We see schools and buyers being more careful, making professional decisions not based on price or TV pressure."

About the industry in general, Magness says things are harder than before the sharemarket crash of last October. "The thing holding us up at the moment is a shortage of sales staff. It's hard to get good people."

Amstrad hasn't had a particularly smooth run in this country, but plans a big campaign within the next month or so. New Zealand was the only country with different distributors to handle the Amstrad audio and computer equipment, and Brandt, already carrying the audio line, took over the Grandstand computer operation a few months ago. The two are run separately within Brandt, but to Amstrad in the UK they are one and the same.

Michael Howard reports the 464 model to have slowed right down, but the 6128 to be going from strength to strength, selling well against the Amiga. (If everybody's selling well against the Amiga, and the Amiga's also selling very well, what does it all mean?) Amstrad's odd-looking new portable seems to be a success, but more staff changes within Brandt have meant an apparent lack of continuity.

Still, the overall trend among the micros does seem to be upwards, even in this uncertain period. Can it continue?

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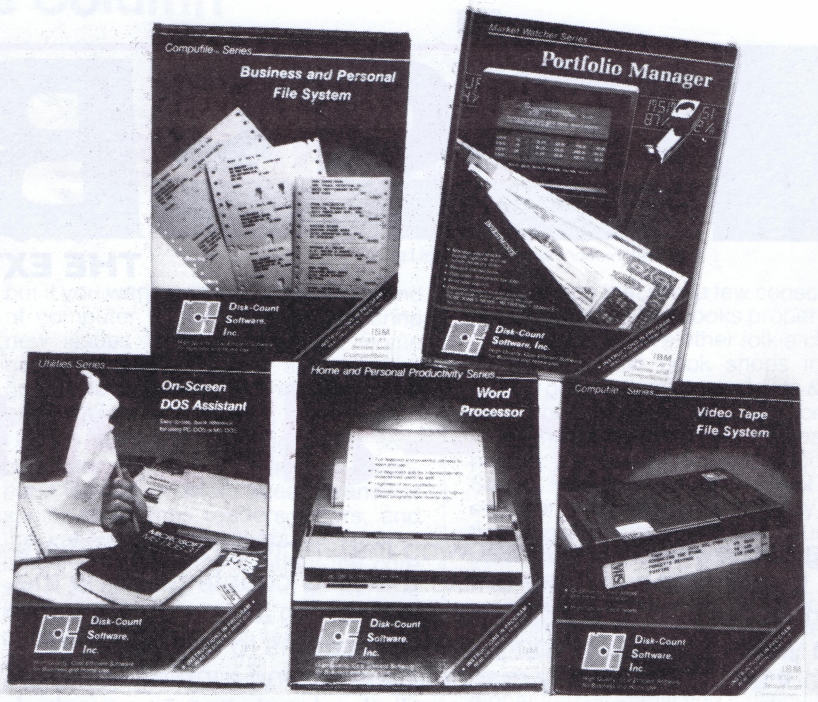


Budget MS-DOS software! Where does it fit in with Public Domain, Shareware and commercial software? Five packages by Disk-Count Software were put to the test.

The five packages comprise a wordprocessor, which I began using for this review, a video tape filing system, an on-screen DOS assistant, an investment portfolio manager and an address filer. Each costs $35 and is simply a single disk in a box. The manual is supplied on disk as a text file, together with two batch files allowing you to either read the file on the screen or to print it out. I would prefer to have a bound manual, as printing them out involves up to fifty pages of wear and tear on your printer, not to mention the paper.

Word Processor

I soon gave up using the word processor, which I found very clumsy to use and annoying in the way it handles text. When you load the program you are in a command mode, which allows you to load, save, merge, get directories of files and do all the arrangement of the text. By pressing the Home key you are transfered into edit mode where all the text entry takes place. This is satisfactory, but a menu system is preferable so you can select the option and still be in edit mode.

The program comes with a tutor which it suggests you work through before you start. It asks you to interact by changing parts of the file, then change them back again to get used to its features. This can also be printed out as part of the manual.

The program has a memory limit of 53kb so any large files won't fit. Disk-Count has tried to solve this problem by providing a file-splitting program to break up large files created by other word processors into chunks that it can handle, which is fine until you want to work on lots of different parts of the file at the same time. There are no underline, bold, italics etc. features available, so you can't highlight any of your text.

This program is definitely inferior to PC Write, which provides an extensive try before you buy feature. The latest version of PC Write also contains a spell checker, not included in this word processor. Although PC Write is more expensive, it does include a bound manual and the opportunity of earning some money on commission.

Video tape file system

This program has as its sole purpose the organisation of a video tape library, allowing you to print out the list of videos in the order of title, actor or tape number. It also prints labels to stick on the spine of the video for cataloguing.

The main menu gives several options which supposedly may be selected by the first letter or with the cursor keys and [Enter]. But once you use the arrow keys you are unable to use the method of first letter selection. If you try to select any option besides Help or Create you are told to go to the Create option to load a file or to Create a new one.

The menu options are: Help, which only tells how to select the menu options as a box at the bottom tells what to do in most parts of the program; Add, which allows you to add extra videos to the file; Find, for searching for data by title, author or subject; Edit, which allows you to change previous entries; List, for printing out labels and lists of the tapes; Printer, to determine the configuration of your printer; Create, which loads a previous file or creates a new one; and Quit to leave the program.

This is an activity that could easily be handled by a database of any calibre. The only nice thing about it is that there is no hassle in getting started straight away, if you are not confident about developing your own system.

Business and personal file system

Virtually identical in layout to the video file system, which is not surprising since it was written by the same author, this incorporates the same main menu design, the only difference being an export function for transforming the data into ASCII format to use for merging addresses into a word processor. The Help is more comprehensive in that it gives information on each choice of the main menu.

It prints lists of addresses and sticky labels for putting on envelopes, and because it is so similar to the other program it has the same advantages and disadvantages.

On-screen DOS assistant

This program is for the user without an extensive knowledge of MS-DOS or for one who is constantly referring to a manual for the parameters of a command. The program sits on disk until Help is typed, when a screen full of the commands covered is displayed. The user can then type Help again, followed by the command help is required for.

The program has to be on the current drive or be in a subdirectory stated in the path command in the Autoexec.bat file. I found it quite useful for experimenting with some of the lesser used commands, but I would use them so infrequently that I would prefer to look it up in the DOS manual and save putting it on my DOS disk which is already overflowing with little programs.

Portfolio manager

Intended for keeping your investments under control, this program has no set-up procedure required, although it does not allow for the European date format.

The main menu is very well done, having each option in a highlighted box and a square border which moves in the direction of the cursor keys. There is no option to use first letter, but the other is so quick there is no need. The menu gives the option of printing reports, stating the data drive, add or editing entries, examining a tax-table and accessing the main feature of this program, being able to receive the latest prices via modem. The Reports option lists your securities, your entire portfolio or calculates your income for the next year. It also has the option of printing out the tax table.

When the Add option is selected from the menu you are confronted with a screen containing all the titles, and all that is required of you is to fill it in, in the appropriate places. A box is provided at the bottom for notes which comes in very handy.

There is no attempt at providing an analysis module which would project and graph any trends, and without the modem option available in New Zealand (unless you are willing to pay huge toll bills), it becomes a very ordinary program.

Very cheap

These packages are very cheap as MS-DOS software goes and even compete with some of the Public Domain when the distributors have added their bit. They are probably not as good as some of the Shareware packages available, but can be readily obtained.

If you were considering buying more than one or two, it would probably be better to get an integrated package which gives you a spreadsheet and flexible database as well. ■

Review packages supplied by Software Plus, Ponsonby, Auckland.

A solution for the two-finger typist

by James Lawry

As many a personal computer user will tell you, it is all very well to own a word processor capable of many marvellous feats, but you'll never fulfill your dream of settling down as a best-selling novelist if you can't find your way around the keyboard. In my experience many would-be computer users would find their computers more useful if they weren't always staring blankly at the keyboard looking for the next letter.

All kinds of typing courses can be taken to overcome the keyboard barrier, the most practical of which is probably a computer-based one.

Touch'n'Go, by Caxton Software, is such a course. "24 Hours to Keyboard Mastery" says the advertising, so I put it through its paces. The course runs on any Amstrad computer with CP/M. It is implied in the advertisements that the software will not run on the 464 or 664; I found this not to be true. More details on that later.

Documentation is brief but perfectly adequate – apart from the registration card and advertising blurb, there are merely copying instructions to create a working disk (which are very detailed, so even the beginner should have no trouble), and a page of notes for Amstrad users outlining differences in the keyboard. (The package is designed for any CP/M system.) Half a page on the back of booklet is headed "Using Touch'n'Go", which simply tells you how to load the program. All further instructions are on screen.

Both QWERTY keyboard and numeric keyboard tutorials are included in the program, and a screen of instructions can be displayed for each course. You can choose which lesson to start at, and if you have used the program before, the last lesson completed will be displayed. There is no compulsion to continue from exactly where you left off, so you can skip back to revise or skip forward for a taste of something more difficult. The QWERTY keyboard course is split into 61 lessons, while the numeric keypad course is covered in 13.

The QWERTY course follows the standard pattern of giving you a line of text to copy, after which you are told how you did. The course starts with the basic home keys and works

Be a sport!

by Timothy Howell

This month I will cover most of the remaining sports games that are available for the Commodore 64. As usual I will restrict myself to those games which I feel offer the best quality and value for the gamer's dollar.

Tennis games are almost ten a penny on the C.64, but while this choice may be great, the quality of some of them leaves a lot to be desired. Of the many that are available, I would say that only three are worthy of attention, and I think that even they could still be improved upon.

First up is an old one: Match Point from Psion. Though it would be almost four years old now, I think this is one of the best available. You have the usual one- or two-player choice, as well as a level selection which, as you go up, gets faster and faster. Graphically it is alright, sound is quite basic but it *is* fun to play.

Activision's On Court Tennis has now been released as a Firebird budget game so it should still be around. This game is graphically quite good – the players are animated well and the court scrolls when you hit the ball to another part of the court. The game is fun, but is different because the computer moves you and all you have to do is time and play your shot, easier said than done, which is where the challenge and the fun of the game lies. However, as far as lasting interest is concerned it may not be so strong.

The last tennis game is Commodore's own International Tennis. Again this adds a new dimension to the tennis game by having a side-on view of the court instead of the more usual plan view. While it may be a novelty, I found it took a lot of getting used to before I could play it well, especially when it came to lining up a shot, but it is worth a look.

When it comes to basketball the C.64 is well endowed. Once again Andrew Spencer and Commodore have got together to produce International Basketball. This really is a gem of a game. You can choose what rules you want to play under (NBA, Olympic etc.) which determines how the game times are set out: in halves or quarters. The perspective of the court is realistic and the ball's behaviour is also good, and it is probably the best of the basketball games available.

Electronic Arts' One on One set the early standard for simplistic basketball games, but recently Activision released Two on Two Basketball. This allows two players to work as a team against two computer players, but this is where the only advantage of the game seems to lie. Everything else appears to be mediocre. As far as the future of basketball games goes on the C.64, Imagine (by way of its Spanish coders Dinamic) is soon to release Basket Master which offers another one-on-one situation, this time with a side-on view.

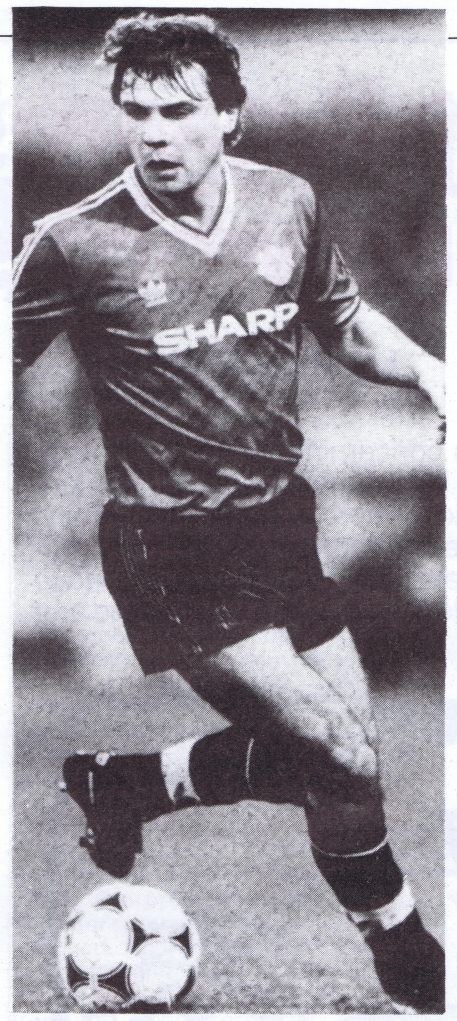
Boxing on

The arcade game Punch Out enjoyed a lot of popularity because of its large and humorous opponents.

Elite tried to cash in on this success by releasing the licensed Frank Bruno's Boxing which looks very similar and puts you as the former heavyweight champion who has to flight several other opponents. While the graphics and the sound are quite effective, there doesn't seem to be a great deal of variety in the actions to be played and they don't feel very definite.

Nevertheless, one boxing game that is a bit better than this is Activision's Barry McGuigan's Boxing. This game moves slightly away from ordinary arcade actions and adds other elements such as the necessity to train. You are an unknown boxer who has to battle his way through about 20 opponents to eventually meet Barry himself in the final. The addition of such aspects as the training do go towards adding a bit extra to the game, but I still didn't find it to be overly satisfying.

However, when it comes to excellence, why go any further than the excellent Leaderboard series produced by Access/US Gold? The original Leaderboard set the high standard of golfing games that were to follow. This first game wasn't realistic because the scenery consisted only of land and water, but it made up for that by having great animation on the golfing figure and neat spot effects.



You have a choice of the length of the course, each hole of which has a set par, as well as 14 different golf clubs and a choice of what level you want to play. 'Tournament' courses are available which allow you to load extra courses into Leaderboard, but you do need the original for this and they don't really add much at all to the game.

Soon after Leaderboard was released the same company followed with a sequel, Executive Leaderboard, which wasn't much of an improvement as it really only added trees and bunkers. However, when Access produced World Class Leaderboard this was really the peak of how golf could be implemented on the 64. Not only were there extra features such as more trees, but the courses were also accurate representations of real-life ones.

Besides this highly successful Leaderboard series, there isn't really a great selection of golfing games available. Ariolasoft tried to compete with Golf Construction Set, but this was very clumsily done despite the ability of being able to design your own courses. Budget-wise, Mastertronic released Hole in One which was a colourful but not very realistic simulation.

Not cricket

One area where the C.64 hasn't been pushed to its limits is when it comes to cricket games. There have been many successful attempts at producing a cricket simulation, but although many of them may have been fun to play, they haven't been accurate representations of the game.

Audiogenic's Graham Gooch's Test Cricket lets you pit the Australian and English teams against each other, or you can select and create your own teams. Graphically it is good, sound is only limited to good muffled effects and crowd noises, but y ou have no control of where you hit the ball or how you field it.

Peaksoft's Tim Loves Cricket has more control over this, but the graphics are very weak. Tynesoft's Ian Botham's Test Cricket (or Arnie Armchair's Howzat Cricket) is the weakest of the lot where accurate representation of the game is concerned, but despite this it can be quite fun to play, even though you can't play against the computer as in the other two.

American sports on the 64 have been well tried. As far as baseball is concerned, one game that has set the standard is Hardball by Accolade/US Gold, which immediately impresses by its graphic quality but also matches this in playability. It is initially very hard to play well because to hit the ball you need very quick reactions. Otherwise the game is very realistic, and you even can make some player changes and other managerial decisions.

More recently Epyx/US gold has brought out Street Sports Baseball which is believed to be a more informal, but very playable game. Imagine also produced World Series Baseball which, although it wasn't astounding technically, was also fun to play.

Football complications

The complicated rules of American football have made it very hard to effectively use a joystick to carry out the necessary movements. Activision was early on the scene with On Field Football (now released on Firebird's budget range) which I guess was a good game for its time but has now been surpassed by more recent games.

Ocean's Superbowl is one example. It has very small player graphics but this allows almost two full teams to be on screen at once. I found this game to be the easiest to play because although you do have a variety of menus, it was much more approachable and understandable. A nice touch was the large figure action replay screens.

Nexus' Super Sunday is believed to be an excellent game but I haven't seen it. Accolade has very recently released 4th and Inches, believed to have even furthered the standard of football games.

Comparatively minor sports have also been released on the C.64. New Generation's Jonah Barrington's Squash is the only squash simulation around, but despite having excellent speech it is only mildly playable. Access has also released Tenth Frame, a very good ten-pin bowling simulation which I have mentioned before. The pins fall down realistically when they are hit and you also have great control over the ball with respect to how you are going to bowl it. Mastertronic's MAD label has also produced a bowling game which has going for it only the fact that it is cheap.

As far as sports simulations go, those I have mentioned have generally been the best, or only, ones of their type. I have not gone into the many karate and other fighting games available as there are just far too many to cover and most of them are not trying to be accurate simulations of fighting. Next time I will try to describe some of the many arcade conversions that have been made for the Commodore 64. ■

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outwards, with instructions on which finger to use for each letter as it is introduced. Fingers are trained to move in the right directions for each letter with simple exercises; for example to practise using the W key you are asked to type a line of S to W to S, S to W to S, since S is the "home" key for the finger which types W. After a few drills like this you are immediately typing words with the letters so far covered.

Ratings

You are given speed and accuracy ratings after each exercise, and if the standards required are not reached you are encouraged to try again. I was a bit suspicious of the speed ratings at first, but a check showed that they were a reasonable guide. Of course a words-per-minute rating doesn't mean much in some of the earlier exercises where you are typing single letters. There is no restriction on backspacing, unlike some other courses; if you make a mistake, you can go back and correct it and it will not be counted in the mistakes count, but you will lose some time.

The course is relatively complete: it covers the Shift keys and capitals, semi-colons, commas and full-stops, and encourages good habits in spacing (two after a full stop, one after a comma), details other courses often miss. However, the course assumes that your semi-colon key is where the colon key is on the CPC machines. Since all the exercises and prompts are stored in text files on the disk, you could change them to suit the keyboard easily, but it is only a very minor flaw.

Similarly, the keypad course has the zero and decimal point keys in different places, and if necessary this could be altered in the same manner. The drills and exercises work in the same way as the keyboard course.

Throughout the program you are prompted: "To quit hit your Escape key." This does not work on the Amstrad, a point noted in the documentation, and Ctrl–'[' must be used instead. I found it easier to use SETUP.COM to define the ESC key to return character 27.

The results program is entered from the CP/M operating system after you quit, and gives a run-down on performance through the various lessons, and an average speed reached.

The program runs as supplied on the CPC 6128 and PCW computers. A slight modification can be made to make the programs run in the same way on the 64kb machines, although it will run adequately without the modification. After you have made a working copy of the disk, enter Basic and type in this program:

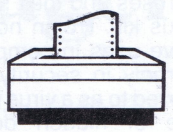
```
10 OPENOUT "config.dat"
20 PRINT #9,"AMSTRAD"
30 PRINT #9,"12"
40 FOR i=1 TO 7:PRINT #9,"0":NEXT
50 PRINT #9," 12252"
60 CLOSEOUT
70 END
```

Place your backup copy of Touch'n'Go in the drive and run the program, creating a new configuration file on the disk. (The old one is still there if required under CONFIG.BAK.) The file tells the program which ASCII code clears the screen, in this case character 12. The message in line 20 is printed as part of the program's sign-on message: "This copy of Touch'n'Go has been configured for <XXXX> VDU screen.", so you can put your name there if you like.

That's all there is to do: without this modification, the screen would not be cleared properly when the program is used on the 64kb machines. I am surprised that this was not included as an option in the package, but possibly it was thought that the market among 464 and 664 users was minimal.

Overall it's a very competent program showing signs of professional polish which others lack. It works well: my fingers, having suffered under other typing courses and refusing to go where they were told, are now obediently typing away like a pro. I have seen the program described elsewhere as addictive, and I could believe it. It is certainly very straightforward to use.

The 24 hours are a realistic estimate of the time it would take to complete the course from scratch, and it is equally useful for brushing up on your skills if they are showing signs of rust.

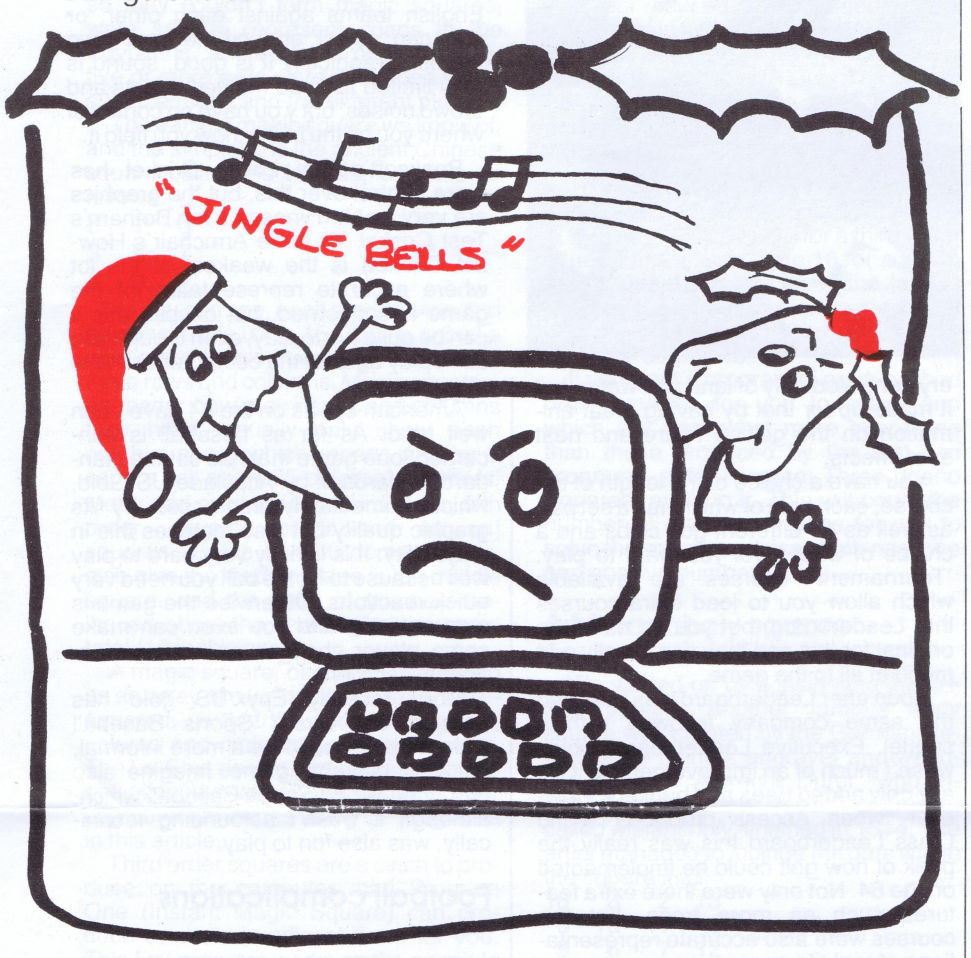


```
To quit hit your 'ESCAPE' key.


Requirement to master this lesson: Accuracy  95 % , Speed  30 WPM

Now type the following (finishing with 'return') ---
(Do not type return until the end of the input.)

coal, call, control, ill, kill, fool, soil, oil,

coal, call, control, ill, kill, fool, soil, oil,


you made  0  mistakes
accuracy =  100  percent
words per minute =  64

Well done, you passed the tests

Hit space bar to continue.
```

Trojans, viruses and worms

by Rod Bicknell

The recent glut of press reports concerning computer viruses targeted to destroy data in large mainframe computers suggests a widespread epidemic in the computer community. Calmer counsel indicates that the community has survived continual virus assault. In New Zealand virulent outbreaks have been reported in PC, clone, Apple Macintosh, Commodore and Amiga circles.



From overseas come frightening accounts of terrorist attack using computer viruses. Perhaps most startling were confirmations in February from the Canadian Macintosh magazine *MacMag* that a relatively harmeless virus it developed had escaped.

Worse: the *MacMag* virus, hidden in the system folder of a Macintosh HyperCard, was uploaded to Aldus FreeHand special interest groups on Compuserve of Columbus, Ohio, and Genie, a competing telephone service run by GE Information Services of Rockeville, Maryland. Users were then infected while downloading the files, a textbook case of propagation.

The virus, rapidly infecting several hundred thousand Macintosh users around the world, was the first ever reported to reside in a national US on-line utility for any length of time. It was two weeks before the virus was discovered and removed.

Using its host Macintosh's internal clock, the virus triggered on 2 March to deliver a message reading:

"Richard Brandow, Publisher of *MacMag*, and its entire staff would like to take this opportunity to convey their Universal Message of Peace to all macintosh [sic] users around the world."

Infected users who failed to boot on 2 March did not receive the message and no damage has been reported. Aldus is not recalling the product but intends an offer to exchange infected disks. The company, thinking it caught the infection from a games disk, is enforcing tighter software manufacturing security.

With modern programs having half a million lines or more of code for a virus to hide in, software manufacturing security has become highly complex.

"We're cognisant that we have a weak point," admits Jeffrey Harbars, director of application development at Microsoft Corporation in Redmond, Washington. Microsoft, one of the world's largest software companies, designed and publishes the IBM compatible operating systems, PC- and MS-DOS, among other applications. Harbars says that Microsoft is "sterilising" its software development programs.

Counterattacking terrorism

In the future, he says, "I can see us spending more development time trying to counterattack terrorism."

MacMag's Richard Brandow says that the virus was placed on several Macintosh computers in the magazine's Montreal offices in December. He denies that it was deliberately distributed, insisting that the virus was intended to illustrate widespread software piracy.

That such an insignificant virus could so quickly and easily penetrate such a major bastion of the software industry as Aldus is jolting. Noting the rapid worldwide epidemic spread of the virus, Brandow says, "We've prevented software piracy, we've made people aware of it."

Although viruses and their somewhat less contagious kin Trojan horses and worms do have uses in computer programming, largely in security, what is generally referred to as a virus is a small, sinister piece of hidden destructive malignant software code written by a malicious programmer.

The virus rewrites itself into a computer's operating system, perhaps eventually calling a routine that erases all stored data and programs. Along the way it may send cryptic messages, freeze programs and lock the keyboards.

Like their biological counterparts, computer viruses multiply. While awaiting the trigger to destroy, a virus can rewrite itself into every executable program file it contacts. As the operating system runs every program, all programs and files become infected. These contagious programs then spread the virus to any computer using them.

Viruses are transmitted between computer by any method used to transfer data: keyboards, tapes, disks or telephone lines.

"The dangers of viruses are just unbelievable," says Donald Latham, former US Assistant Secretary of Defence. "The threat is more serious than most people think."

In the early 1980s virus reports chiefly involved public access computers in universities and schools. Current reports include corporate infighting, terrorist attacks on mainframe computers and widespread infections at IBM, Hewlett Packard, Apple Computers and other large key computer and software manufacturers.

Although for obvious reasons corporations and governments seek to conceal and downplay virus perils, mainframe computers, whether used for air traffic contol or to keep tax and bank records, are just as susceptible to virus attack as any personal computer. According to Dr Fred Cohen, a University of Cincinnati professor researching computer viruses, a large mainframe computer can be subverted in an hour. Even a huge international network with thousands of computers spread over continents could be fully penetrated in days.

A Christmas virus for IBM

Demonstrating this point, last Christmas IBM itself was involved in a multinational infection. The program was non-destructive but tied up IBM's international lines for days and was cleared only at considerable time and expense. Although it did not attach to programs and was therefore not technically a virus, it is known as "the Christmas virus."

Written as a prank by a West German student, the device appeared to be a computer Christmas card. It secretly searched files and sent copies to any computer that had communicated with the host computer, repeating the action with every computer it was sent to.

From a European link to Bitnet, the largest academic computer network in the world, the chain letter jumped to five continents and the IBM network, dumping an avalanche of junk mail on a global multitude of computers.

IBM has established a filter system so that executable programs can no longer be transferred between computers without authorisation. IBM programmers, however, would be the first to note that filters are far from providing wide spectrum virus immunisation.

Destructive viruses have been reported in the US, Europe, Britain and Israel. Documented infections in the US include two recently, some say currently, in the Internal Revenue Service Univacs and a logic bomb in the Los Angeles Water and Power Department. Buried within the code of a virus discovered at the University of Delaware was a ransom demand instructing that $2000 be sent to a Pakistan address for an immunity program.

The National Security Agency, the Pentagon agency responsible for US government computer security, and various US military groups have sponsored several unpublicised and often classified conferences on (terrorist) computer virus attack.

"I'm afraid no one really knows what to do about viruses," admits Andrew Goldstein of Digital Equipment Corporation who has attended several of these meetings. "None of the existing mechanisms for security deal with them very well."

Terrorist virus in Israel?

Different events trigger viruses, perhaps when stored files reach a certain level. The trigger (known as "event logic" to programmers) for a virus discovered in the Hebrew University in Jerusalem was the date Friday 13 May 1988, the 40th anniversary of Palestine's last day of political existence.

The Hebrew University virus was disclosed when a programming error caused it to mistake previously infected program files as uninfected. Then, in error, it added another copy of itself to the file.

When supposedly unmodified programs started growing and flooding disks, it became clear that the computer had a virus. It was found that some program files had been infected as many as 400 times.

"A computer virus is deadly because it can jump – actually slide right through – the barriers everyone uses to control access to valuable information," says Kenneth Weiss, technical director at Security Dynamics Technologies Inc, a computer security company in Cambridge, Massachusetts.

"The solution is to put a wall with a good solid gate around the jungle – most computers still have the equivalent of a sleepy guard at the door."

Computers with multiple users stand the highest risk of infection. Public access computers in schools and universities are prime targets as are those in industries such as insurance and finance where one computer is used by many users.

Programs stored on these computers are frequently used to process data stored on floppy disks downloaded from another computer, perhaps a mainframe. Often under pressure from others waiting to use the computer, this type of user frequently uses unapproved utility programs to streamline data file management. The corporate battlefield is littered with such biological warfare victims.

Telephone bulletin boards providing public domain or user-supported programs (perhaps a file management utility) are high-risk areas. Special interest group distribution systems using floppies can also be virus bathhouses.

The safest user doesn't use the computer as a communications device, never mixes disks with other computer users and has no contact with the outside world except through copyrighted commercial programs. Such isolation is used with military and high security computers.

(to be continued)

Microprose

by Andrew Lockhart

Things have never been better for simulations fans. Microprose has two new simulations, one being Gunship, a superb product based on the US Army's AH-64 attack helicopter.

The Commodore 64 version features surprisingly fast vector graphics, considering the size and complexity of the game (which in fact comprises about 300kb of code and data!). Microprose has spent considerable time and resources to ensure that this game is not just another flight simulator, and real helicopter pilots have participated in testing the game which incorporates all the major weapons and systems of the real gunship.

At the time of writing, Gunship has reached 10th spot on the British software charts and is doing well here. It is available in the following formats: Commodore 64/128, Amiga, IBM and compatibles, Tandy 1000, 1200 and 3000, Apple and Atari, with the best versions being Atari 520 and 1040ST and the Amiga. If you own or have access to any of these computers, get wise and buy yourself a Gunship.

Micropose's second new release, Airborne Ranger, is a departure from normal flight simulations. Instead, you control a soldier's fate as he fights his way across a graphically impressive 3D landscape with 12 different missions.

Although this is a break from tradition, Microprose insists Airborne Ranger is definitely *not* a shoot-em-up. It's available on the C.64 with other versions following.

Better graphics on the Commodore 128

by E. Lander Thompson

Commodore apparently decided that the 80-column mode on its C.128 would be used only for text, and provides no graphics commands for the 8563 Video Display Chip. Now, Basic 8, written by Louis Wallace and David Darus and published by Patech Software, gives 128 owners a full range of 80-column graphics editing commands.

Some correspond to the 128's 40-column Box, Char, Circle, Draw, etc, but operate in 3-D space with X, Y and Z co-ordinates. Other commands provide for perspective drawings, with control of vanishing-point and angle of view, which may be rotated easily. There's a total of 53 specialised commands (all incorporating the prefix "@" in a wedge system which works happily alongside Basic 7. Also provided is Basic Paint (written using Basic 8 which is a mouse- or joystick-driven drawing/painting system with an impressive array of options.

To cap it off, a run-time system is provided, allowing programs written in Basic 8 to be saved complete with WIOS Workbench a GEOS-style icon-based mouse- or joystick-controlled boot/menu system. Programs on such disks may be run, but not listed or edited. Runtime disks (with users' programs written in Basic 8) have no copyright restrictions and may be freely given away or even sold. The Basic 8 Editor system and Basic Paint are, of course, copyright although not copy-protected.

All three systems are compressed on to one master disk which comes with a 188-page manual in a three-ring A5-size binder. A built-up backup system allows the user to make three separate autoboot working disks – Editor, Basic Paint and RunTime disks – after which the Master is stored until a further copy of any working disk is required.

The manual is quite comprehensive but not as clear as it might be for the first-time user, a shortcoming emphasised by the lack of an index. Some of the terminology used seems downright confusing.

A few small sample programs are given, but a bigger range of these would be a great help in getting to grips with the Editor system. Listings of Basic Paint and the Workbench may be studied to see how complex programming is done.

Try your own

Seven M/L printer-driver programs are provided, covering a total of eleven printers. If your printer is not represented, you have the choice of trying to adapt the most likely-looking of the seven, or writing your own from scratch. Some information is provided for machine-language programmers, but if you haven't the necessary skills, believe me it can be a frustrating business. My Riteman C+ would not work in Plus mode, which usually corresponds with Epson mode in other graphics-printing programs, and I am restricted to Commodore (MPS-801) mode which limits the choices of output format.

Basic 8 provides for writing programs incorporating mouse or joystick controls, windows, and additional character sets (ten special fonts are provided, including 160-column, or you can load and use any others you favour). Characters may be enlarged in width or height up to 16 times normal, although the effect tends to be blocky and ugly. The mouse must be the "proportional" 1351 type, not the poplar 1350 or equivalents, which may be used in joystick mode only.

The system can utilise the 128kb or 512kb RAM cartridges, and the upgraded C.128D with expanded video RAM (64kb instead of 16). Apparently it is possible (but not recommended for the unskilled) to change an existing C.128's two 4416 or 4164 8kb chips to a pair of 32kb 4464s. The problem is that the 8kb chips are crimped and soldered in, not socketed. With 64kb, there's no limit on the number of colours which may be used over the full hi-res screen area, and colour resolution may be enhanced to 8 x 2 cells.

Any screen format

With the standard 16kb, the full 640 x 200 pixel screen is restricted to monochrome, but by trimming the display slightly a variety of coloured can be added. Eight different predefined screen modes are provided and 640 x 176 with 8 x 8 colour cells is recommended as the most generally useful, but there's a SCRDEF command to enable you to define any screen format to suit your particular needs.

There's no doubt that Basic 8 brings to the 128 potential for very impressive graphics presentations and complex window/icon/mouse systems. Like most advanced programs, it needs considerable effort to learn and develop the necessary skills, and some additional explanatory material (and an index!) could greatly ease this process.

Dan Hill has now published a 45-page *Beginners' Guide to Basic 8* which comes with a demonstration disk and overcomes some of my criticisms above. It includes many impressive programs, step-by-step examples for **all** commands (text and on disk) and is indexed. It certainly clarifies many of the mysteries which the Basic 8 package itself can create, and provides fixes for a couple of bugs which existed.

However, buyers should not face a 50 per cent addition to the purchase price in order to overcome shortcomings in the original package. Later editions of Basic 8 include two new modules, Basic Write and Basic Print, but I am unable to report on these.

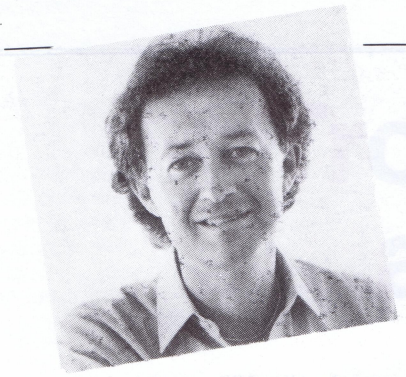
Although my copy of Basic 8 was duly registered with the publishers, and I queried them on some points, I have had no response. Neither have I had advice of the later edition or means of obtaining an update, so it may be that support from the publishers cannot be relied on.

The writer's copy of Basic 8 and Dan Hill's booklet came from Software Support International, 2700 NE Andresen Road, Vancouver, WA 98661, USA (formerly Computer Mart). Patech Software Inc is at PO Box 6216, Vancouver, WA 98661.

Micropost (NZ) Ltd urge you to read MICRONEWS on page 7 in this issue of Bits & Bytes carefully.

It carries a report of vital interest to all DP Managers.

CAMPBELL 9621



That old black magic square

Tim Hartnell dives into the ancient and arcane field of magic squares. A magic square is one whose rows, columns and diagonals add up to the same total.

Magic squares have been amusing and intriguing man for a long, long time. The Egyptians and early Indians, the followers of Pythagoras and the ancient Chinese all dabbled in them, to tap the squares' magical powers, for divination and for plain old mathematical curiosity.

Squares having just two or four cells, so they couldn't form magic squares, were said to represent chaos to the Egyptians, and squares of three, four, five or more cells were dedicated to the sun, the moon and the different planets.

The earliest magic square we know of, and the simplest, is the ancient Chinese square called the Lo-Shu, which is as follows:

```
8  1  6
3  5  7
4  9  2
```

As you can see, each row, column and diagonal adds up to 15. This is called a third order magic quare, because it has three rows and columns. Magic squares, no matter how many rows and columns they have, usually only show each number once, which means a 5 by 5 square will show 25 different numbers. Many odd order (that is third order, fifth order, seventh order and so on) squares, as the Lo-Shu demonstrates, also give the median vlaue in the middle square, and the pairs of numbers balanced about the centre give the same total (10 in this case).

A magic square, of order n, is defined as an array of n x n numbers, from 1 to n-squared, so that the sum of each row, column and main diagonal is constant. The Lo-Shu, as you can see, fits into this definition, as will all the squares your computer generates using the programs in this article.

Third order squares are a cinch to produce on the computer, and Program One (Instant Magic Square) can produce a whole bundle of them for you. This first program works on the principle that you can form a third order square just by selecting a starting number (which we'll call n) and then adding to it as follows:

n+5	n	n+7
n+6	n+4	n+2
n+1	n+8	n+3

If you want your computer to generate third order squares, but leave it to you to work out some of the numbers in it, use Program Two (Instant Magic Square – to Solve). This program will produce output like this:

```
INSTANT MAGIC SQUARE
 0   0  92
91  89  87
86   0   0
```

THE TOTAL is 267 You have to work out the numbers which are printed as zeros.

Now third order squares are not so challenging to solve. We need to move to higher order squares in order to really get the brain cells working.

We've seen that the Lo-Shu adds up to 15, and the program given will always tell you the total of the rows, columns and diagonals. Is there a formula for working it out?

There is, but only when the digits from 1 to n-squared are used (such as using 1, 2, 3, 4, 5, 6, 7, 8 and 9 for a third order square; and 1 through to 16 for a fourth order square). In this case, the total is given by the formula n x (n-squared + 1)/2. In the case of the Lo-Shu, this is 3 x (9 + 1)/2 = 30/2 = 15.

If you want a program to produce third order squares for you to solve, and which are somewhat more interesting than those produced by the first two programs, enter Program Three (Idaho Squares) and run it. This will count the number of guesses it takes for you to solve the square and uses both negative and positive numbers.

A Melancholy square

We started off by considering the Lo-Shu square. Another famous early square was created by the German Renaissance painter, engraver and woodcut designer Albrecht Durer, who included his square in the engraving called *Melancholy*, finished in 1514. The artist managed to include the date within the square itself:

```
16   3   2  13
 5  10  11   8
 9   6   7  12
 4  15  14   1
```

The total for this square, given by our formula, is 4 x (16 + 1)/2, or 34. As with the Lo-Shu, the numbers in the Melancholy square balance about the centre point, with each pair totalling 17. Our third program (Melancholy Square) will produce as many fourth order squares as you like, including negative numbers as well as positive ones this time, for a bit of variety. Here's a typical square produced by the program:

```
-41  -40  -69   46
-98   17  -12  -11
-68   45   74 -155
103 -126  -97   16
THE TOTAL is -104
```

As the construction of these squares is somewhat more complex than the third order ones, the program has to produce an intermediate stage square on its way to completing a proper one. The program prints out this intermediate stage so you can see it on the way to completion. It is a relatively simple process. The program creates a series of numbers (like 1, 2, 3, 4 and so on, or 4, 8, 12, 16 and the rest) and then puts them down in sequence, like this:

```
 1   2   3   4
 5   6   7   8
 9  10  11  12
13  14  15  16
```

Then it goes along the diagonals (1, 6, 11, 16 and 4, 7, 10, 13) swapping each one of these numbers with its opposite number, so 1 is swapped with 16, 6 with 11, 4 with 13 and 7 with 10. Once it has swapped them over, it prints out the final form of the square, along with the total:

```
16   2   3  13
 5  11  10   8
 9   7   6  12
 4  13  15   1
```

Benjamin Franklin

Now you probably know that Franklin was statesman, writer, politician and so on, but it is unlikely that you would have thought of him as a mathematician. However, it appears from his journal that he was. Never a modest man when speaking of his accomplishments, Franklin noted:

> "In my younger days, having once more leisure time (which I still think I might of employed more usefully) I had amused myself in making these kind of magic squares, and at length acquired such a knack at it, that I could fill the cells of any magic square of reasonable size with a series of numbers as fast as I could write them..."

Quite apart from his grammar, Franklin wasn't interested in mundane magic squares such as produced by the programs in this article. He wanted them to total if added up in corner diagonals, horizontal and vertical zig-zags and so on. Franklin squares have totals which can be reached along broken diagonals that change direction halfway through the square, as well as in other ways.

One of the weaknesses of Franklin squares, however, was that the main diagonals did not always sum to the right total. Despite this, Franklin was proud of his squares. One of his more celebrated efforts is as follows (and I'll leave it to you to discover just how many ways the totals can be reached):

```
52  61   4  13  20  29  36  45
14   3  62  51  46  35  30  19
53  60   5  12  21  28  37  44
11   6  59  54  43  38  27  22
55  58   7  10  23  26  39  42
 9   8  57  56  41  40  25  24
50  63   2  15  18  31  34  47
16   1  64  49  48  33  32  17
```

Modest old Ben claimed: "You will readily allow the square... to be the most magically magic of any magic square ever made by any magician."

Latin squares

With the exception of the third order Idaho squares, we've concentrated so far on magic squares which use numbers which follow each other in a sequence of some kind. Latin squares are squares formed by numbers which have no regular relationship to each other. David King's book *Magic Square Puzzles* says that a Frenchman, Phillipe de la Hire (1640-1718), was the first person to work out a way to easily construct Latin squares.

As our next program (King David Squares) is based on this method, I've called it after the author of the book. It chooses ten numbers at random between 0 and 999, and then constructs a pleasantly fiendish fifth order square from them, by adding the following Latin square to the randomly-chosen, non-duplicated numbers:

```
0  3  1  4  2
4  2  0  3  1
3  1  4  2  0
2  0  3  1  0
1  4  2  0  3
```

Here's a sample square produced by this program:

```
KING DAVID SQUARE
  TOTALLING 5121
1472   897   887   764  1101
 996  1537  1037   790   761
 355   654   870  1769  1473
1643  1705   791   219   763
 655   328  1536  1579  1023
```

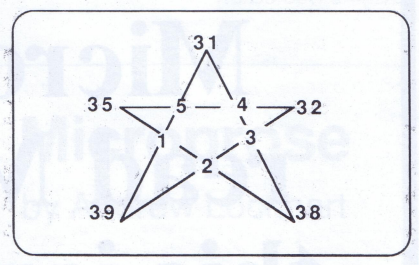
De la Loubere

De la Loubere was the envoy of Louis XIV to Siam in 1687-1688, where he apparently learned the method of constructing magic squares which bears his name today. It's a fairly tiresome process to follow his instructions by hand to create a magic square, so we've taught the computer to do it. The De la Loubere method has the advantage that you can specify any order square (third, fifth, nineteenth or whatever), and give it a starting number (which will be the lowest number which will appear in the final square) and the method will produce a square to order.

Here's a sample square produced by our fifth program (Magic Square Generator) using the De la Loubere procedure:

```
7 BY 7 MAGIC SQUARE,
  STARTING WITH 12
41  50  59  12  21  30  39
49  58  18  20  29  38  40
57  17  19  28  37  46  48
16  25  27  36  45  47  56
24  26  35  44  53  55  15
32  34  43  52  54  14  23
33  42  51  60  13  22  31
```

Finally, as a break from magic squares, I thought I'd write a program which produces 'magic stars'. here's a sample magic star:



As you can see, each line on the star adds up to the same total. In this program (Idaho Stars), a new star is generated on each run. Two or three of the numbers are changed to zeros and you have to work out – just as with the Idaho Squares – what the missing numbers are. ■

Program One

```
10 REM INSTANT MAGIC SQUARE
20 CLS:N=INT(RND(1)*99):PRINT "INSTANT M
AGIC SQUARE"
30 PRINT TAB(4);N+5;TAB(8);N;TAB(12);N+7

40 PRINT TAB(4);N+6;TAB(8);N+4;TAB(12);N
+2
50 PRINT TAB(4);N+1;TAB(8);N+8;TAB(12);N
+3
60 PRINT "THE TOTAL IS";3*N+12
70 PRINT "--------------------"
```

Program Two

```
10 REM INSTANT MAGIC SQUARE - TO SOLVE
20 CLS:N=INT(RND(1)*99):PRINT "INSTANT M
AGIC SQUARE"
30 A(1)=N+5:A(2)=N:A(3)=N+7:A(4)=N+6
40 A(5)=N+4:A(6)=N+2:A(7)=N+1:A(8)=N+8:A
(9)=N+3
50 FOR J=1 TO INT(RND(1)*5+1):A(INT(RND(
1)*9+1))=0:NEXT J
60 PRINT TAB(4);A(1);TAB(9);A(2);TAB(14)
;A(3)
70 PRINT TAB(4);A(4);TAB(9);A(5);TAB(14)
;A(6)
80 PRINT TAB(4);A(7);TAB(9);A(8);TAB(14)
;A(9)
90 PRINT "THE TOTAL IS";3*N+12
100 PRINT "--------------------"
```

OPIX OPIX OPIX OPIX OPIX OPIX OPIX OPIX OPIX OPIX OPIX

OPIX (OPus Information eXchange) is a sample of the interactive Technical Forum now running on the Auckland based NZ MICRO OPUS Bulletin Board System. Note the new number 468-315, 300 to 2400 bps (24 hours).

++

TO: All
FROM: GN
SUBJECT: VMD312

DOES ANYONE KNOW WHETHER THIS MODEM CAN BE MADE TO OPPERATE AT 1200/1200 I HAVE THE CAPABILITY AND CIRCUIT DIAGRAM BUT NO INFO
ANY DETAILS WILL BE APPRECIATED

TO: GN
FROM: RM
SUBJECT: Re: VMD312

A very short answer to your question is "NO". This question was asked somewhere on this board last year, and I understand that a number of chips require replacement to get the correct frequencies for 1200/1200 operation.

TO: GN
FROM: DS
SUBJECT: Re: VMD312

The VMD312 modem uses the AM7910 chip, like most small dumb modems nowadays. This chip is only capable of 300/300 & 1200/75, in originate and answer modes, and using Bell or CCITT tones (although to get Telecom approval, the Bell modes of the chip have to be made unavailable). I believe it is possible to run a modem based on the AM7910 at 1200/1200 half duplex. This is of very little use for conversational systems, but could be used for packet-based file transfer protocols (eg Kermit, XMODEM).

++

TO: All
FROM: MM
SUBJECT: Oz modems

I'm going to Aussie in a couple of months time, and I was wondering if I could get an Aussie modem to work in NZ. Has anybody done this or knows if it is possible?

TO: MM
FROM: DS
SUBJECT: Re: Oz modems

Should be OK. As long as it uses CCITT frequencies, it will work with NZ systems. It may have Bell tones, but don't consider that an advantage. Bell tones will not work in NZ. Also remember that the modem won't be type-approved (ie don't tell Telecom).

If it is an autodial modem ... remember that our numbers are reverse (don't know about oz) ie one pulse = 9, two = 8 etc. Tone dialling is standard (I think), so shouldn't pose any problems.

TO: MM
FROM: RM
SUBJECT: Re: Oz modems

Yes, it will work in NZ ok. Australia has the same telecoms requirements as NZ except that in NZ the 'pulse' dial system in inverted! Tone dialing is ok though.

TO: D & R
FROM: MM
SUBJECT: OZ Modems

Thanks for the info, guys. So all I need to do is make sure it is CCITT and has tone dialing, right? Are they much cheaper than NZ modems? I am looking at getting a 300, 1200, and possibly 1200/75 with auto-answer and auto-dial. I am not sure how much something like that would cost in NZ, possibly about $700 I guess.

TO: MM
FROM: DS
SUBJECT: Re: OZ Modems

They will probably be cheaper. Modems are expensive here because if imported they must be modified to disable BELL modes to get type-approval. The cheapest modems in NZ are those manufactured here. You will be able to get modems imported from the US in Aus without modification. Also ... you will still be able to use pulse dialling on a modem by working out what the corresponding inverted number is. I think the corresponding numbers are: (NZ = Aus) 1=9, 2=8, 3=7 ... 8=2, 9=1, 0=0 (10 pulses). So, to dial 498-315, get the modem to dial 612-795. In any case, auto dialling is only useful to hackers searching for modem numbers. Otherwise it is only a convenience feature. I had an AD modem around here for a while, and found dialing manually just as easy, and faster because I have a tone dialling phone.

TO: MM
FROM: GH
SUBJECT: Re: OZ Modems

Hi, One good buy in Australian Modems seems to be the Maestro Supermodem, available as a kit for around $225 Aust. If buying dont forget to enquire about export as you will not have to pay Australian Sales tax (Mr Douglas will get you here instead). No point in paying tax twice. Regards.

++

TO: All
FROM: GH
SUBJECT: Capture and convert

Does anyone know of a programme for the PC that will capture the output from a commercial programme going to an LPT or COMM port on a PC and allow one to convert what is being sent to an alternative. I have an "odd" type of plotter, I know the codes for both it and the HP plotter that most programmes are configured for, and want to "catch" the plotter codes (HP) as they are sent and convert them into the equivalent Graphtec codes. Any experts out there ? Regards...

TO: GH
FROM: RP
SUBJECT: Re: Capture and convert

If you download PRN_FILE.EXE from the file sectkon this will allow you to redirect printer output to a disc file. You can then process this and resend it with your own program. DONT FORGET TO TURN OFF DISC CAPTURING WHEN YOU RESEND OR ....

Regards

TO: RP
FROM: GH
SUBJECT: Re: Capture and convert

Tried that approach but did not have a lot of success. The programmes concerned generally feed out on the serial port rather than PRN, and so are missed by the capture routine. If you have had any experience with that programme and any CAD ,especially Autosketch, package I would love to know how you did it. Thanks.

TO: RP
FROM: GH
SUBJECT: Printer Capture

This is getting frustrating. I can get the Autosketch programme to output to an actual printer, and the RS232 output to transfer to another PC through a null modem. But I still can not capture the programme output on disk as it must access the printer port directly. Have you had any luck in this area.
Regards

Program Three

```
10 REM Idaho Squares
20 REM (c) Tim Hartnell, 1987
30 REM Interface Publications
40 GOSUB 250:REM INITIALISE
50 J=J+1
60 CLS
70 PRINT:PRINT:PRINT TAB(3);
80 M=0
90 FOR Z=1 TO 9
100 PRINT B(Z);" ";
110 IF 3*INT(Z/3)=Z THEN PRINT:PRINT:PRI
NT TAB(3);
120 IF B(Z)=A(Z) THEN M=M+1
130 NEXT Z
140 PRINT
150 IF M=9 THEN PRINT "YOU'VE SOLVED IT"
:PRINT "IN JUST";J-1;"GUESSES!":END
160 PRINT:PRINT "THIS IS GUESS NUMBER";J

170 PRINT:PRINT "YOU HAVE";M;"RIGHT":PRI
NT
180 INPUT "ENTER YOUR GUESS";X
190 FOR Z=1 TO 9
200 IF B(Z)=0 AND A(Z)=X THEN B(Z)=X
210 NEXT Z
220 GOTO 50
230 END
240 REM ********************
250 DIM A(9),B(9)
260 A=INT(RND(1)*9)+1
270 B=INT(RND(1)*9)+1
280 C=INT(RND(1)*9)+1
290 D=INT(RND(1)*9)+1
300 IF A=B OR B=C OR A=C OR A=D OR B=D C
R C=D THEN 270
310 A(1)=A+B
320 A(2)=A-(B+C)
330 A(3)=A+C
340 A(4)=A-B+C
350 A(5)=A
360 A(6)=A+B-C
370 A(7)=A-C
380 A(8)=A+B+C
390 A(9)=A-B
400 FOR Q=1 TO 9
410 B(Q)=A(Q)
420 NEXT Q
430 B(A)=0
440 B(B)=0
450 B(C)=0
460 B(D)=0
470 J=0
480 RETURN
```

Program Four

```
10 REM MELANCHOLY SQUARE
20 CLS:DIM A(4,4)
30 FIRST=INT(RND(1)*100)
40 AJUMP=INT(RND(1)*100-RND(1)*100)
50 BJUMP=ABS(INT(RND(1)*AJUMP))
60 FOR J=1 TO 4
70 FOR K=1 TO 4

80 IF K=1 THEN A(J,1)=FIRST:GOTO 100
90 A(J,K)=A(J,K-1)+AJUMP
100 NEXT K
110 FIRST=FIRST+BJUMP
120 NEXT J
130 PRINT "INTERMEDIATE STAGE":GOSUB 240

140 PRINT "NOW SWAPPING VALUES..."
150 A=A(1,1):B=A(2,2):C=A(3,3):D=A(4,4)
160 A(1,1)=D:A(2,2)=C:A(3,3)=B:A(4,4)=A
170 A=A(4,1):B=A(3,2):C=A(2,3):D=A(1,4)
180 A(1,4)=A:A(2,3)=B:A(3,2)=C:A(4,1)=D
190 PRINT:PRINT "FINAL FORM IS:":GOSUB 2
40
200 TTL=A+B+C+D
210 PRINT TAB(6);"TOTAL IS";TTL
220 END
230 REM ********************
240 REM PRINT OUT
250 FOR J=1 TO 4
260 GOSUB 350
270 FOR K=1 TO 4
280 M$=STR$(A(K,J))
290 IF LEN(M$)<4 THEN M$=" "+M$:GOTO 290

300 IF A(K,J)<0 AND LEN(M$)<4 THEN M$="
"+M$
310 PRINT "|";M$;
320 NEXT K
330 PRINT "|"
340 NEXT J
350 PRINT "---------------------":REM 21
-'s
360 RETURN
```

Program Five

```
10 REM KING DAVID SQUARES
20 CLS:PRINT "CONSTRUCTING...PLEASE STAN
D BY..."
30 DIM Z(2000),A(5,5),B(10),C(4),D(4)
40 FOR J=1 TO 10
50 K=INT(RND(1)*1000):IF Z(K)<>0 THEN 50

60 Z(K)=1:B(J)=K
70 NEXT J
80 PRINT "THE CORE NUMBERS ARE:":TTL=0
90 FOR J=1 TO 10
100 PRINT B(J);:TTL=TTL+B(J):Z(B(J))=0
110 NEXT J
120 PRINT "TOTALLING";TTL
130 REM ************************
140 PRINT:PRINT "NOW CHECK FOR DUPLICATE
S":FLAG=0
150 FOR J=6 TO 10
160 FOR K=1 TO 5
170 M=B(J)+B(K)
180 IF Z(M)<>0 THEN FLAG=FLAG+1
190 Z(M)=1:PRINT M;
200 NEXT K
210 PRINT
220 NEXT J
230 IF FLAG=0 THEN 280
240 PRINT FLAG+1;"DUPLICATE(S) FOUND"
250 PRINT "I WILL HAVE TO START AGAIN"
260 FOR J=1 TO 2000:Z(J)=0:NEXT J:GOTO 2
0
270 REM ************************

280 PRINT "NO DUPLICATES FOUND":PRINT
290 FOR K=0 TO 4
300 C(K)=B(K+1):D(K)=B(K+6)
310 NEXT K
320 FOR J=1 TO 5
330 FOR K=1 TO 5
340 READ P,Q
350 A(J,K)=C(P)+D(Q)
360 NEXT K
370 NEXT J
380 PRINT "KING DAVID SQUARE TOTALLING";

TTL:PRINT
390 FOR J=1 TO 5
400 FOR K=1 TO 5
410 M$=STR$(A(J,K))
420 IF LEN(M$)<6 THEN M$=" "+M$:GOTO 420


430 PRINT M$;
440 NEXT K:PRINT
450 NEXT J
460 REM ************************
470 REM DATA
480 DATA 0,0,4,3,3,1,2,4,1,2
490 DATA 3,4,2,2,1,0,0,3,4,1
500 DATA 1,3,0,1,4,4,3,2,2,0
510 DATA 4,2,3,0,2,3,1,1,0,4
520 DATA 2,1,1,4,0,2,4,0,3,3
```

Program Six

```
10 REM MAGIC SQUARE GENERATOR
20 CLS:INPUT "SIZE OF MAGIC SQUARE";A
30 INPUT "AND THE NUMBER TO START WITH";
C
40 CLS:DIM B(A*2,A*2)
50 PRINT A;"BY";A;"MAGIC SQUARE, STARTIN
G WITH";C:PRINT
60 F=C:X=1:IZ=1:J=(A+1)/2
70 B(IZ,J)=F:F=F+1:IF F>A*A+C-1 THEN 140

80 IF X<A THEN 100
90 X=1:IZ=IZ+1:GOTO 70
100 X=X+1:IZ=IZ-1:J=J+1:IF IZ<>0 THEN 12
0
110 IZ=A:GOTO 70
120 IF J<=A THEN 70
130 J=1:GOTO 70
140 FOR K=1 TO A:FOR J=1 TO A
150 T=B(K,J):IF T<10 THEN PRINT " ";
160 IF T<100 THEN PRINT " ";
170 PRINT T;:NEXT J
180 PRINT:PRINT:NEXT K
```

Program Seven

```
10 REM Idaho Stars
20 REM (c) Tim Hartnell, 1987
30 REM Interface Publications
40 GOSUB 500:REM Set up star
50 GOSUB 360:REM Print Star
60 GOSUB 90:REM Ask for guess
70 GOTO 50
80 REM ********************
90 REM Ask for Guess
100 IF SCORE > 0 AND SCORE < 10 THEN PRI
NT "You have"SCORE"right so far":PRINT
110 GO = GO + 1
120 PRINT "This is go number"GO:PRINT
130 PRINT "Enter any number which you"
140 INPUT "think is part of the star";G
150 SCORE = 0
160 FOR J = 1 TO 10
170 IF G = A(J) THEN B(J) = A(J)
180 IF B(J) <> 0 THEN SCORE = SCORE + 1
190 NEXT J
200 FOR P = 1 TO 1000:NEXT P
210 IF SCORE < 10 THEN RETURN
220 REM ********************
230 GOSUB 360
240 PRINT:PRINT "Yes, you've solved it!"

250 PRINT:PRINT "And it only took"GO"goe
s..."
260 FOR P = 1 TO 1000:NEXT P
270 PRINT "Press 'Y' if you'd like to"
280 PRINT "try another Star of Idaho,"
290 PRINT "press 'N' to stop....."
300 A$ = INKEY$
310 IF A$ <> "n" AND A$ <> "N" AND A$ <>
 "Y" AND A$ <> "y" THEN 300
320 IF A$ = "Y" OR A$ = "y" THEN RUN
330 PRINT:PRINT "OK, thanks for playing"

340 END
350 REM ************
360 REM Print star
370 CLS:PRINT:PRINT
380 PRINT TAB(11);B(1)
390 PRINT:PRINT
400 PRINT TAB(2);" ";B(2);"  ";B(3);" ";
B(4);" ";B(5)
410 PRINT
420 PRINT TAB(7);B(6);"     ";B(7)
430 PRINT
440 PRINT TAB(10);B(8)
450 PRINT
460 PRINT TAB(4);B(9);"          ";B(10)
470 PRINT:PRINT
480 RETURN
490 REM ************
500 REM Set up star
510 CLS
520 DIM A(10),B(10)
530 GO = 0:SCORE = 0
540 A = INT(RND(1)*9) + 1
550 B = INT(RND(1)*9) + 1
560 C = INT(RND(1)*9) + 1
570 D = INT(RND(1)*9) + 1
580 E = INT(RND(1)*9) + 1
590 IF A = B OR A = C OR A = D OR A = E
THEN 550
600 IF B = C OR B = D OR B = E THEN 550
610 IF C = D OR C = E THEN 550
620 IF D = E THEN 550
630 X = INT(RND(1)*3) + 1
640 A(1) = X
650 A(2) = X - B + C + D
660 A(3) = A + E
670 A(4) = A + D
680 A(5) = X - B - C + E
690 A(6) = A
700 A(7) = A + C
710 A(8) = A + B
720 A(9) = X - 2*B + 2*D + E
730 A(10) = X - 2*B - C + D + 2*E
740 FOR J = 1 TO 10
750 B(J) = A(J)
760 IF A(J) = 0 THEN RUN
770 NEXT J
780 B(INT(RND(1)*10) + 1) = 0
790 B(INT(RND(1)*10) + 1) = 0
800 B(INT(RND(1)*10) + 1) = 0
810 RETURN
```

Some advice on getting advice

by David Cass

What do you do when you're faced with a problem? Can't seem to get past a block in a program, or faced with the computer sitting there unblinking with a cryptic error message, or even worse, when you can't even get a program to load and run.

The first thing to do is to remember that computers are maddeningly logical creatures: everything has to be done just so, with an exact instruction, to which the computer will respond. If it's not right, it won't go.

So, think back over your last two or three keystrokes. Have you hit Enter or Return? Did you hit the keys you intended to? Can't remember what keys you hit? You won't be the only one. Some books recommend that when you're exploring a new program, you note all your actions, to go back over them when things go wrong. It has always seemed like a counsel of perfection to me, but sometimes I have done it, and it has come in useful. If you can identify a wrong key press that may be the problem, and correcting it may set you right again.

Then consult the manual(s). Some manuals are known and revered for their total uselessness (take a bow, C.64), but others are much better. It is helpful if they have a good index and a Common Problems page, listing error messages commonly found, and how to cope with them.

Not all manuals do, unfortunately. If you find your computer manual is unhelpful, sometimes independently-authored books written about your computer may supplement or supplant your manual. If you are running a bought program with a manual, keep that manual right there with you, and work with it. I scribble helpful notes all over mine as I experiment, to save having to work things out a second time.

If all that fails, now you need advice! There are lots of ways, though few of them will provide help at the immediate moment that you need it. You can seek help in three main ways: first, and best, is to get hands-on help. Second best in my experience is help from the written word, books, magazines or manuals, and least helpful, though often the quickest, is verbal advice over the phone.

Find an expert

Hands-on demonstration is always the winner. You can show the problem, and help from an expert to diagnose and cure is all that's needed. Which experts can you turn to? I've found two main sources: user groups and shops.

First, user groups. Join the Microcomputer Club and go to meetings of your nearest user group. There you will find people with experience and enthusiasm, the best combination of all. It's usually best to contact the secretary of the group, who may or may not be able to help but will point out the person who can, or give you a phone number to contact.

This is the best source of advice of all, but I do know some people who have tried this approach without success. They felt too inhibited by the expertise and enthusiasm that user groups generate, and ended up by not daring to ask what seemed too basic a question to bother these experts! Or, if they did pluck up courage enough to ask, they asked the wrong person and got overwhelmed by the reply.

How can you beat this trap? My approach, and it may not suit everybody, was to observe from a safe distance for the first couple of visits, and then ask one of the quieter souls for guidance, saying that I was a beginner, did not want too technical a reply, and who did he recommend?

Now, computer shops. Only some can help, and they are usually *not* the pile-it-high and sell-it-cheap merchants, who don't know what they're selling and don't want to know you after you're out the door with your purchase.

It's not always easy to find the right shop, but look for a computer specialist shop, and preferably one where the staff are out on the shop floor, working on a computer keyboard. They are more likely to have the experience that allows them to say, "Ah yes, try this or this," and take you over to the right machine and show you how.

There's a moral here – buy your gear from a shop of this sort, and you'll be able to go back and ask for help when you need it. Chances are that you'll have had a good demonstration from them anyway. Cut-price merchants or toy shops are not the best places to buy your computer. Be fair about this, and don't expect a shop that you've not bought from to give you advice, even though they may do so out of goodwill.

The written word

Next most useful to me in my learning game has been written information. Three main sources can be used: magazines, books, and bulletin boards if you're into modems.

Magazines are so expensive that it becomes increasingly hard to justify a subscription, but alas, it is also increasingly hard to find a good selection of magazines in bookshops or even computer shops. Gordon and Gotch, who (almost) monopolise magazine distribution in this country, have no idea of what are good magazines, and seem totally capricious in what they distribute and for how long.

Almost the only way of seeing a good selection of computer magazines is through the Microcomputer Club library, but if you want mags for your own brand of computer, some user groups bring new issues to their meetings. Some good computer dealers also have a good selection, with back number reference copies.

Most helpful in learning about your computer are features such as Beginner's Guides, problem question/answer spots, sometimes readers letters, and the various type-in programs, particularly if they have notes about the construction of the programs to go with the listings. Cheaper than commercially published mags, but of variable quality and interest, are the user group magazines or "fanzines" sometimes mentioned in small ads.

If you find this magazine approach useful, it may well pay you to do a little indexing project on your computer, or set up some other way of remembering where you saw that good article on whatever it was.

Books are also expensive to buy, but can be of great assistance. They vary greatly in quality. Some are just rewrites of the manufacturer's manual with no added insights, but others do add significantly, either with extra content or by being better written so that you can understand them.

Reviews in the computer magazines may help you to find out which are the good ones. Your local public library may stock a selection of books on the major computer brands, although their computer book stocks are decimated by theft – and I hope that stirs a few consciences out there! Issue the books properly, and return them, to give other folk a chance. Some specialist book shops in town offer a good selection, and *Bits & Bytes* runs a book club, at reduced prices too.

I've never tried the bulletin board approach. It is a favoured approach in the States, less so in Britain, and not strong over here, but it certainly is a way of getting contact with experts in your computer, so could be an option for the well-equipped.

Verbal advice over the phone can sometimes be a help to the perplexed. It suffers from two main problems: the description of the problem when as a beginner you probably find it difficult to describe; and the expert being able to describe the fix in words that a beginner can follow. I have been helped this way, and once or twice have helped others myself, but I find it very hard unless I can go to my computer and see the problem myself. People to contact for this sort of help can be contacts from the user group, and a good shop with knowledgeable staff, or the software importer or distributor, if you're stuck when using a commercial program.

Where to go for advice is a topic where experience of many can well be shared. I've started with the sources that have helped me out from time to time, and if any readers care to contribute ideas of their own by writing to me, c/o *Bits & Bytes*, I will gladly report them to others through the agency of this column, when we next appear in two months' time. ■

Brilliant hybrid or potential orphan?

by E. Lander Thompson

When the C.128 arrived on the scene in 1985, its three-part character acknowledged the dominance of Commodore's C.64 in the market – one mode was an exact replica of a C.64, able to use the huge range of 64 software developed over the years, much of it public-domain.

Its CP/M mode should also have benefited from a well-established software base (mainly business-oriented), but somehow it didn't catch on. The programs were there, many of them free for the copying, but hardly anyone (least of all Commodore NZ and its dealers) seemed to make the effort. Subsequent developments in 128-mode software have probably satisfied many needs in this programming field, so the CP/M mode would hardly be missed.

And what of the C.128's native mode, with its usable memory over three times that of the C.64's, Version 7.0 of Basic, built-in M/L monitor and (if you have the right sort of screen and connections) an 80-column display? Text-oriented software produced to take advantage of this mode is also capable of twice the 64's processing speed. Until recently, graphics programs were limited to 40 columns and the slower speed, but fast 80-column high-resolution programming is now feasible.

Basic 7 makes the C.64's Basic seem very primitive. It adds commands for disk operations, for easy manipulation of 40-column graphics including sprites, and for direct music/sound control, plus useful programming commands, most already familiar to C.16 and Plus4 owners through Basic 3.5.

Our household may not be a typical C.128 user, but we find it more than adequate. It is used most often as a word processor, for correspondence and reports. In our retired state, my wife and I enjoy keeping in touch with our scattered family members and friends in New Zealand and overseas, our community interests prompt more writing and some account-keeping, and our personal interests generate more uses as a few examples will show.

There are databases for investment management, a record collection and reviews, and the local Commodore user group's library. Spreadsheet applications keep accounting records for our investment and other finances, and accounts for the treasurer of a local bowling club.

Workhorses

The workhorses are 128 versions of Superscript, Superbase and Swiftcalc. There *are* C.64 equivalents, but it is a joy to be free of the limitations of a 40-column display. The greater speed and storage capacity of the 128D (or 1571), with its double-sided disks (332kb usable against 166kb for the 1541 drive) put this machine a long way ahead of its forebears.

Superscript is a first-class easy-to-learn word-processor – it's not a WYSIWYG presentation, but it's only very occasionally that I find myself lamenting this. It's easy to set up for any printer, and I still haven't used all the features it offers.

The matching database system is Superbase 128. Each record may consist of up to four 80-column screens, with a maximum of 127 fields. There's a flexible programming facility and a direct report generator, making it easy to produce results in the form you need, either on-screen or printed. I guess it must be slow and primitive alongside any fully-developed PC database, but I find it works smoothly and reliably, and again I have yet to use all its features.

Swiftcalc 128 is a conventional spreadsheet with up to 250 columns and rows. All the usual format and function facilities are there. Pull-down menus and a comprehensive Help system make learning easy, and for the experienced user who prefers short-cuts, there are quick alternatives to cursor-key selection for menus. Charts are readily produced and print-outs of whole spreadsheets, any section, or of charts, are easy. "Sideways" is included to handle the widest spreadsheet.

Games and adventures seem to remain the preserve of 64 mode. We aren't enthusiasts for this type of entertainment, but why isn't there an 80-column 128 version of, for instance, Flight Simulator II? The bigger memory and doubled speed should cure the 64 version's woefully unrealistic responses and produce something akin to the PC or Amiga presentation. Sadly, it seems that the 128 has been ignored by such programmers.

Produced overseas

Commercial 128 software to suit a wide variety of needs has been produced overseas. Berkeley's GEOS, now bundled with all new 64s, is one which *must* be much better on the 128, but I don't known one 128 owner who has succumbed. There are lots of others – charts and graphing, CAD/CAM, share-market analysis and management, Basic compilers, other languages (C, Forth, Pascal), impressive music – the list goes on.

Then there's a wide range of public-domain and magazine-published programs, some of them really top-standard. Membership of a user group opens up access to this range at minimal cost, and many groups have a 128 special-interest section. If all else fails, there's the 64 mode to fall back on, and a flow of brilliant new software keeps adding to the vast legacy of the 64's golden years.

The future of the C128? If it has a future, it's likely to be in 128D form only. Commodore introduced the "D" to the North American market for the first time late last year, and must be confident that a niche is there.

But to succeed in this country, especially against Commodore's own Amiga 500, the price level would have to drop even further. It seems that few dealers continue to carry the 128, many are heavily discounting 128 software stocks, and used 128s traded on new Amigas have been sold at bargain prices.

Commodore is saying nothing. The advanced technology of the Amiga may well signal the end of the 128, but the history of the 64 shows that with realistic repricing and innovative marketing, continuing demand may be generated. The 128 deserves a better fate than becoming another orphan. ■